PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

Application No.	:	09/270,673
Confirmation No.	:	2804
Applicant	:	Takahisa Ueda et al.
Filed	:	Mar. 19, 1999
Title	:	Annular Sliding Fluoroplastics Member and a Method of Producing an Annular Sliding Fluoroplastics Member
TC/A.U.	:	1772
Examiner	:	M. Mizzins
Docket No.	:	UEDA3003CPA/FJD
Customer No.	:	23364

RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22202-3514

Sir:

In response to the NOTIFICATION OG NON-COMPLIANT APPEAL BRIEF, submitted herewith is a revised brief on Appeal.

Respectfully submitted,

Felix J. D'Ambrosio
Reg. No. 25,721

February 5, 2007

BACON & THOMAS, PLLC
625 Slaters Lane-4th Floor
Alexandria, Virginia 22314
(703)683-0500

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BRIEF ON APPEAL

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Sir:

INTRODUCTORY COMMENTS

Pursuant to the provisions of 37 CFR 41.37, submitted herewith is Applicant/Appellant's Brief on Appeal along with the required fee. The period for response has been extended to expire on September 5, 2006 by the filing herewith of a Petition for a Two Month Extension of Time and payment of the required fee.

Any additional fees necessary for this appeal may be charged to the undersigned's Deposit Account No. 02-0200.

REAL PARTY IN INTEREST

(37 CFR 41.37(c)(1)(I)

The real party in interest is Applicant/Appellant's assignee Nippon Pillar Packing Co., Ltd. The assignment was recorded on March 16, 1999 at Reel 9840 and Frame 0189.

RELATED APPEALS AND INTERFERENCES

(37 CFR 41.37(c)(1)(ii)

There are no related appeals or interferences with respect to the invention defined in this application.

STATUS OF CLAIMS

(37 CFR 41.37(c)(1)(iii))

Claims 22 - 33 and 43 are pending in this application.

Claims 22 - 33 and 43 have been finally rejected.

STATUS OF AMENDMENTS

(37 CFR 41.37(c)(1)(iv))

An amendment was filed concurrently with the filing of the Notice of Appeal to address the rejection under 35 USC 112 noted in the Office Action of January 3, 2006. This amendment to claim 22 was entered as note din the Advisory Action of May 15, 2006 and, presumably, the rejection under 35 USC 112, second paragraph has been withdrawn.

SUMMARY OF CLAIMED SUBJECT MATTER

(37 CFR 41.37 (c)(1)(v))

(References are to page and line of the specification)

The present invention provides an annular sliding fluoroplastics member which maintains excellent resistance to abrasion and wear. The load carrying

ability of the member is enhanced by short fibers mixed with the fluoroplastic (pg. 4, lines 18 - 23). The member also has good thermal conductivity so as to prevent seizure in a slide face between the member and a counter member, so that the sliding property of the member is maintained for a long time. (pg. 4, line 25 to pg. 5, line 3).

The member has a composite structure which mainly consists of fluorine plastics and short fibers, and 20 or more wt.% of short fibers by weight of a total amount of the short fibers being oriented in a direction along which the magnitude of the load is large. (pg. 5, lines 14 - 18). A large ratio of the short fibers are oriented in the direction noted so as to enhance the buckling resistance against a thrust load and the pressure resistance in a radial direction against a radial load. (pg. 5, lines 19 - 23).

Each of the stacked layers may have a wavy sectional shape which undulates in the axial direction. Preferably, overlapping faces of the layers are integrally coupled to one another (pg. 6, lines 11 - 14).

The annular sliding fluoroplastics member 1 consists of a fluoroplastics layer 3 containing short fibers 2 and is formed into an annular shape. (pg 12, lines 9 - 11 and Figs1 and 2). The annular fluoroplastics layer 3 containing the short fibers 2 has a composite structure in which a number of layers are stacked in a radial direction, and each of the stacked layers is formed so as to have a wavy sectional shape which undulates in the axial direction. (pg. 12, lines 15 - 19).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
(37 CFR 41.37(c)(1)(vi))

(1) Claims 22, 23, 26-29 and 33 are finally rejected under 35 USC 103(a) over Braus et al. in view of Wegner et al. and Runton et al.;

(2) Claim 24 is finally rejected under 35 USC 103(a) over Braus et al. in view of Wegner et al., Runton et al. and Hartel et al.;

(3) Claim 25 is finally rejected under 35 USC 103(a) over Braus et al. in view of Wegner et al., Runton et al. and Stiff et al.;

(4) Claims 30 and 31 are finally rejected under 35 USC 103 over Braus et al. in view of Wegner et al., Runton et al. and Board, Jr.;

(5) Claim 32 is finally rejected under 35 USC 103 over Braus et al. in view of Wegner et al., Runton et al. and Sumigochi et al; and

(6) Claim 43 is finally rejected under 35 USC 103 over Braus et al. in view of Wegner et al. and Runton et al.

ARGUMENT
(37 CFR 41.37(c)(1)(vii))

All of the rejections include the combination of Braus et al, Wegner et al. and Runton et al. This combination is applied against claim 22, the only independent claim being considered on this appeal. Accordingly, if this combination of references fails, then the further combinations need not be considered.

(1) & (6)

Regarding the rejection of claims 22, 23, 26-29 and 33 (1) and claim 43 (6), the examiner in applying Braus et al, states: "Braus et al disclose applicant's invention substantially as claimed." It is respectfully submitted that they do not. Braus et al do not have a "plurality of layers stacked in a radial direction." The structure shown in Fig. 1 consists of a backing layer 1, a primer 2 , ***sintered onto the backing layer***, and a matrix 3, which ***has been rolled onto the primer,*** (col. 5, lines 50 - 54 of Braus et al). The primer 2 cannot equate to the fibers claimed and the matrix 3 cannot equate to a further layer. Moreover, even if the primer 2 were equated to the fibers claimed, their orientation does not meet that of the fibers claimed in claim 22. Braus et al does not disclose that "20 or more wt.% of said short fibers by weight of a total amount of said short fibers are oriented in a direction along which the magnitude of a load is large." The examiner appears to appreciate this latter distinction, and relies on Wegner et al for such a teaching.

Wegner et al does disclose short graphite fibers, but the reference to col. 4, lines 61 - 68 of Wegner et al does not, it is respectfully submitted, say anything about orientation of the fibers, as suggested by the examiner. Then the examiner's reference to col. 5, lines 18 - 27 does mention orientation, but nothing like the orientation claimed. The noted passage states: "The heated rake 14 partly melts the thermoplastic synthetic

resin while orienting the fibers so that the fibers are practically prepositioned as the strip enters the continuous sintering oven 16 in which the underside of the band is heated by radiant heating or the band is inductively heated to a temperature of 50^0 to 70^0 K. Above the melting point of the resin. The furnace environment can be held during heating at a subatmospheric pressure, i.e., the furnace can be evacuated to minimize the trapping of air." This passage simply does not support the examiner's conclusion.

The Runton et al patent is cited for its teaching of "overlapping faces." But the deficiencies noted above are not cured by Runton et al so that regardless of what Runton et al may teach, the combination with Braus et al and wegner et al is still defective as a means of rendering claim 22 unpatentable. Moreover, the supposed "wavy sectional shape" really does not exist. Fig. 3 of Runton et al shows the shape in more complete detail, and while it may appear to be wavy, it is not wavy as that concept is understood according to the present invention. Compare Fig. 3 of Runton et al with Fig. 2 of the present invention and the difference is clear. They are not the same.

(2)

The discussion under (1) above is hereby incorporated. In addition, regarding Hartel et al., they are added because they disclose "fibers oriented in a circumferential direction in an annular body (column 3, lines 22-41 and Fig. 2) for the purpose of providing increased load strength (column 2, lines 17-63)".

What in fact Hartel et al. disclose is a single body in Fig. 1 with differently oriented fibers, and two bodies in Figs. 2 and 3 with the fiber orientation of Fig. 1. The layers in Figs. 2 and 3 are joined by an elastic intermediate layer 2.

Does this teaching of Hartel et al. amount to a teaching whereby the skilled

person in the art knows to have 20 or more wt.% of short fibers by weight of the total amount of short fibers to be oriented in an axial direction of the sliding member? We think not. A disclosure of fibers oriented in different directions will not suffice to meet claims 22 or claim 24.

(3)

The discussion under (1) above is hereby incorporated. In addition, regarding Stiff et al., they are added because they disclose an annular member wherein the fibers are oriented in a spiral direction (column 5, lines 1-65) for the purpose of providing improved load strength.

Column 5, lines 1-65 of Stiff et al. has been carefully considered. Applicant/Appellant cannot perceive any basis for even applying this reference. The orientation shown in Figs. 4 and 5 has nothing to do with the present invention.

Does this teaching of Stiff et al. amount to a teaching whereby the skilled person in the art knows to have 20 or more wt.% of short fibers by weight of the total amount of short fibers to be oriented in an axial direction of the sliding member? We think not. A disclosure of fibers oriented according to a helix will not suffice to meet claim 22 or claim 25.

(4)

The discussion under (1) above is hereby incorporated. In addition, regarding Board, Jr. , it is added because it discloses "an annular member wheren [sic] plural filaments (arimid) are stitched to said composite structure (column 6, lines 33 - 68 and Figs 1 - 3)...."

What Board, Jr. In fact discloses is a laminate layer which includes fibers whose orientation is not really known.

Can, therefore, this vague teaching whereby the skilled person in the art knows to have 20 or more wt. % of short fibers by weight of the total amount of short fibers to be oriented in an axial direction of the sliding member? We think not. A disclosure of fibers without any known orientation will not suffice to meet claim 22 or claim 30.

(5)

The discussion under (1) above is hereby incorporated. In addition, regarding Sumigochi et al, they are added because they disclose "an annular member wherein at least one surface of said annular sliding fluoroplastics member is covered with an expanded graphite sheet (column 3, lines 1 - 68, column 7, lines 1 - 68 and Figs. 1 - 4) for the purpose of providing improved heat resistance."

What in fact Sumigochi et al disclose is a sheet-like heat resistant material 4. There is no disclosure of fibers and their orientation.

Can, therefore, this limited disclosure of Sumigochi et al amount to a teaching whereby the skilled person in the art knows to have 20 or more wt. % of short fibers by weight of the total amount of short fibers to be oriented in an axial direction of the sliding member? We think not. A disclosure as limited as that of Sumigochi et al will not suffice to meet claim 22 or claim 32.

Since claim 22 is believed to patentably distinguish over the combination of Braus et al, Wegner et al and Runton et al, claims 23 - 33 and 43 are also believed to patentably distinguish over this combination.

CONCLUSION

A teaching of orientation in accordance with the claimed invention is necessary in order to achieve optimization as does the present invention. It is not enough to find a disclosure of fibers. They must be oriented as are the fibers claimed. The wavy construction must also be taught as claimed. A random orientation (Runton et al) cannot amount to a wavy orientation as claimed.

In view of the above, it is respectfully submitted that claims 22 - 33 and 43 should be allowed over the references of record and those applied.

Respectfully submitted
BACON & THOMAS, PLLC

Date: September 5, 2006

Felix J. D'Ambrosio
Reg. No. 25,721

BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, VA 22314
Tel: (703) 683-0500
Fax: (703) 683-1080
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APPENDIX OF CLAIMS
(37 CFR 41.37 (c)(1)(viii)

1-21 (Canceled)

22. An annular sliding fluoroplastics member having a composite structure containing a plurality of layers stacked in a radial direction and coupled to one another, wherein: each layer includes fluorine plastic and short fibers; and wherein 20 or more wt.% of said short fibers by weight of a total amount of said short fibers are oriented in a direction along which the magnitude of a load is large.

23. An annular sliding fluoroplastics member according to claim 22, wherein 20 or more wt.% of the short fibers by weight of the total amount of said short fibers are oriented in an axial direction of said annular sliding fluoroplastics member.

24. An annular sliding fluoroplastics member according to claim 22, wherein 20 or more wt.% of the short fibers by weight of the total amount of said short fibers are oriented in a circumferential direction of said annular sliding fluoroplastics member.

25. An annular sliding fluoroplastics member according to claim 22, wherein 20 or more wt.% of the short fibers by weight of the total amount of said short fibers are oriented in a spiral direction of said annular sliding fluoroplastics member.

26. An annular sliding fluoroplastics member according to claim 22, wherein 50 or more wt.% of the short fibers by weight of the total amount of said short fibers are oriented in a direction along which the magnitude of a load is large.

27. An annular sliding fluoroplastics member according to claim 22, wherein said short fibers are fibrillated aramid fibers, and said fluorine plastics is PTFE plastics.

28. An annular sliding fluoroplastics member according to claim 22, wherein each of said stacked layers has a wavy sectional shape which undulates in an axial direction of said annular sliding fluoroplastics member.

29. An annular sliding fluoroplastics member according to claim 28, wherein overlapping faces of said layers are integrally coupled to one another.

30. An annular sliding fluoroplastics member according to claim 22, wherein plural filaments are stitched to said composite structure which mainly consists of said fluorine plastics and said short fibers.

31. An annular sliding fluoroplastics member according to claim 30, wherein, as said filaments, long fibers selected from aramid fibers, glass fibers, polyimide fibers, and PTFE fibers which are stretched, or metal wires selected from stainless wires,

aluminum wires, and copper wires are used.

32. An annular sliding fluoroplastics member according to claim 22, wherein at least one surface of said annular sliding fluoroplastics member having said composite structure which mainly consists of said fluorine plastics and said short fibers is covered with an expanded graphite sheet.

33. An annular sliding fluoroplastics member according to claim 22, wherein said annular sliding fluoroplastics member having said composite structure which mainly consists of said fluorine plastics and said short fibers is impregnated with a lubricant.

34-42 (Canceled).

43. An annular sliding fluoroplastics member according to claim 22, wherein each layer is coupled so that the layers do not move relative to each other in the axial direction.

EVIDENCE APPENDIX

There is no evidence being relied upon which was submitted pursuant to 37 CFR 1.130, 1.131 or 1.132.

RELATED PROCEEDINGS APPENDIX

There is no related proceeding being relied upon.